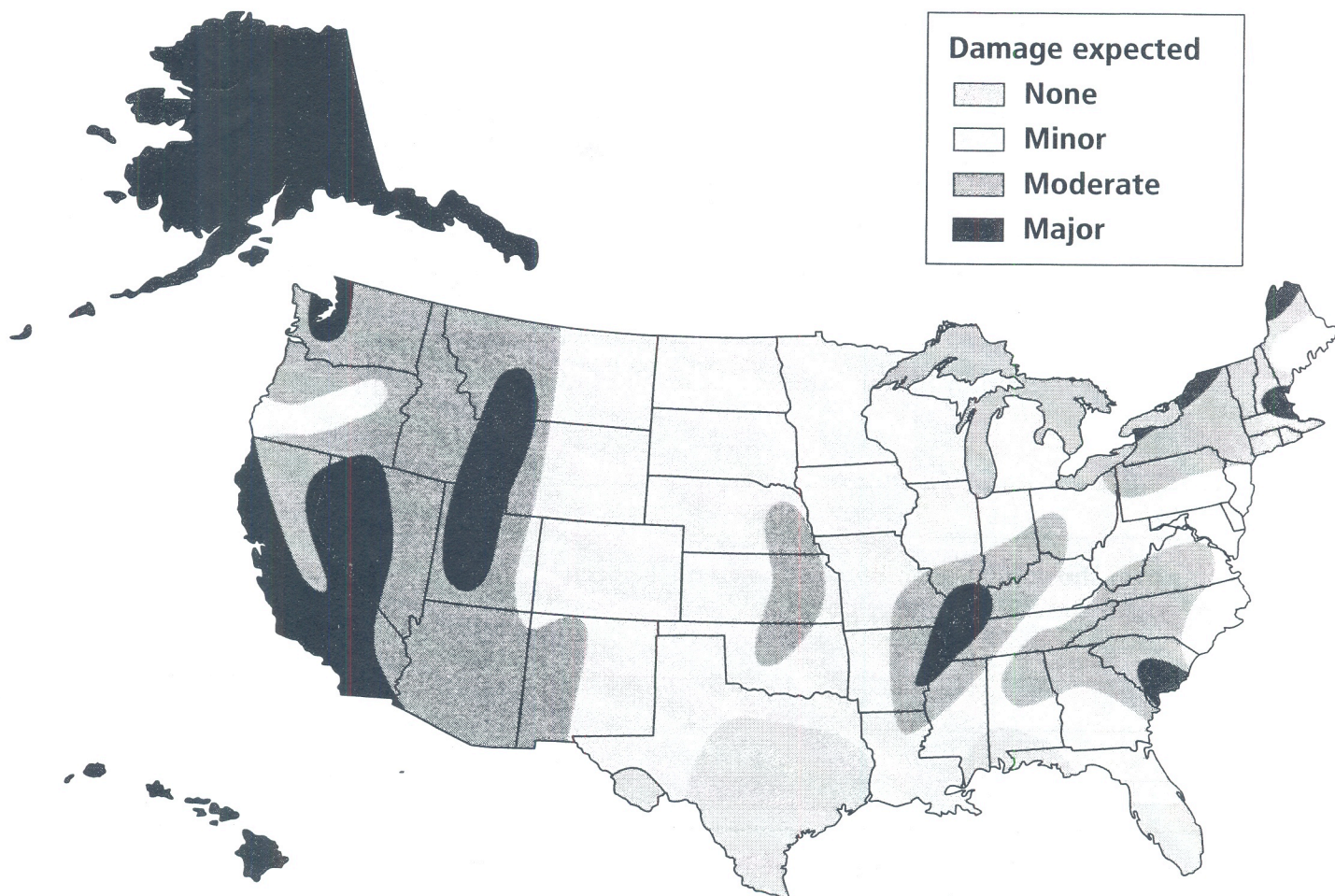


Seismic Risk Map of the United States



Seismic Risk Map of the United States

1. Make a general statement summarizing what the map shows.

2. What regions have the highest risk of major damage from an earthquake?

3. What is the level of damage expected as a result of earthquake activity in southern Florida?

4. Name two states where only minor damage as a result of earthquake activity is expected.

5. Does this map show the probability of an earthquake occurring in a region in a given period of time? Why or why not?

6. How is the seismic risk of an area estimated? What are the characteristics of regions that have the highest seismic risk?

7. What is a seismic gap?

Name _____

Date _____

Class _____

Activity

Earthquake Depths

Lab Preview

Directions: Answer these questions before you begin the Activity.

1. What information is contained in the table?

2. Scan the data table to answer this question: Which earthquake originated at the deepest level?

You learned earlier in this chapter that Earth's crust is broken into sections called plates. Stresses caused by movement of these plates generate energy within rocks that must be released. When this release of energy is sudden and rocks break, an earthquake occurs.

What You'll Investigate

Can a study of the foci of earthquakes tell us anything about plate movement in a particular region?

Materials

graph paper
pencil

Goals

- **Observe** any connection between earthquake-focus depth and epicenter location using the data provided on the next page.
- **Describe** any observed relationship between earthquake-focus depth and the movement of plates at Earth's surface.

Procedure

1. Use graph paper and the data table in the Data and Observations section to make a line graph plotting the depths of earthquake foci and the distances from the coast of a continent for each earthquake epicenter.
2. On your graph, place *Distance from the Coast* on the horizontal axis. Begin labeling at the far left with 100 km west. To the right of it should be 0 km, then 100 km east, 200 km east, 300 km east, and so on through 700 km east. What point on your graph represents the coast?
3. Label the vertical axis *Depth Below Earth's Surface*. Label the top of the graph 0 km to represent Earth's surface. Label the bottom of the vertical axis -800 km.
4. **Plot** the focus depths against the distance and direction from the coast for each earthquake in the table.

Earth- Quake	Focus depth (km)	Distance or epicenter from coast (km)
A	-55	0
B	-295	100 east
C	-390	455 east
D	-60	75 east
E	-130	255 east
F	-195	65 east
G	-695	400 east
H	-20	40 west
I	-505	695 east
J	-520	390 east
K	-385	335 east
L	-45	95 east
M	-305	495 east
N	-480	285 east
O	-665	545 east
P	-85	90 west
Q	-525	205 east
R	-85	25 west
S	-445	595 east
T	-635	665 east
U	-55	95 west
V	-70	100 west

2. Based on the graph you have completed, hypothesize what is happening to the plates at Earth's surface in the vicinity of the plotted earthquake foci.

3. **Infer** what process is causing the earthquakes you plotted on your graph paper.

4. Hypothesize why none of the plotted earthquakes occurred below 700 km.

5. Based on what you have plotted, infer what continent these data could apply to. Explain what you based your answer on.

Communicating Your Data

Compare your graph with those of other members of your class. For more help, refer to the Science Skill Handbook.